

fdn_wall 1 2 3 4 4 7 7 8	fdn_drain 1 2	sprd_ftg 1 2 2 3 4	col_sprd_ftg	UNIT PRICE CATALOG © 2002 Project Planning &
4' high foundation wall Poured-8"; bitum/damp; sill plates Poured-10"; bitum/damp; sill plates Poured-10"; brickledge; bitum/damp; sill plates Poured-12"; bitum/damp; sill plates Poured-12"; brickledge; bitum/damp; sill plates Block-8", grouted; bitum/damp; parging; sill plates Block-10", grouted; bitum/damp; parging; sill plates Block-10", grouted; brickledge; parging; bitum/damp; sill plates Pre-Cast Wall System, bitum/damp; sill plates	PVC 4" dia; gravel drain bed PVC 6" dia; gravel drain bed	3000 PSI concrete Not Req'd (Trench Footing) 12" thick x 18" wide; forms, reinf, direct chute 12" thick x 24" wide; forms, reinf, direct chute (For Precast Foundations) 12" thick x 24" wide; 3/4" stone bedding	3000 PSI concrete forms, rebar, concr, placing, finish	UNIT PRICE CATALOG © 2002 Project Planning & Management, Inc. System Description
(deduct of 4 \$20.44 \$23.60 \$31.16 \$26.08 \$33.64 \$37.84 \$47.28 \$22.80	\$4.00 \$5.00	\$0.00 \$12.06 \$13.71 \$2.22	\$204.00	Ave Su Base Un

FIGURE 2a

Ę	Location Factor: 0.94 Sales Tax: 6.0%	0.94 6.0%	MASTER [BASELINE] RCM Berrien City, MI	BASELINI y, MI	EJ RCM
Ave Sub Ge	Ave Sub Gen'l Conditions: 2%	2%	Cos	Cost Adjustments	ents
Cost	Cost	Unit	Loc Fctr	S_Tax	Sub_GC
\$204.00	\$201.35	CY	0.94	3%	2%
\$0.00	\$0.00	듀			
\$12.06	\$11.90	듀	0.94	3%	2%
\$13.71	\$13.53	듀	0.94	3%	2%
\$2.22	\$2.19	듀	0.94	3%	2%
\$4.00	\$3.95	듀	0.94	3%	2%
\$5.00	\$4.94	듀	0.94	3%	2%
educt of 4*\$0.	educt of 4*\$0.70 eliminates 1" rigid insul)	rigid insul)	,		
\$20.44	\$20.17	뉴	0.94	3%	2%
\$23.60	\$23,29	≒	0.94	3%	2%
\$31.16	\$30.75	듀	0.94	3%	2%
\$26.08	\$25.74	두	0.94	3%	2%
\$33.64	\$33.20	두	0.94	3%	2%
\$37.84	\$37.35	듀	0.94	3%	2%
\$42.44	\$41.89	뉴	0.94	3%	2%
\$47.28	\$46.67	듀	0.94	3%	2%
\$22.80	\$22.50	듀	0.94	3%	2%

FIGURE 2b

SECTION 7: IF	SECTION 7: IRIII DING SYSTEMS	nengin	
	This final section will explore and document your quality expectations for various building systems in your new home. These decisions are important as they will directly affect the construction budget. In addition, building envelope selections (walls, roof, windows, insulation) will also impact energy heat loss calculations.	document your quality expense. These decisions are imform, building envelope selection, building envelopes.	ectations for various portant as they will directly affect dions (walls, roof, windows,
01 Foundation			
	011 Standard Foundations Sand/Gravel Soil	Sand/Clay Soil	Problem Soils (e.g., water; low soil bearing capacity)
02 Substructure			
	021 Slab on Grade 4" thick (standard)	5" thick	6" thick
	022 Excavation: Basement	<u> </u>	
	No Basement	Crawlspace	
	☐Full Basement	Partial Bsmt (some of C	Partial Bsmt (some of Ground Floor living area on slab)
	023 Basement Walls]	
Wall Materia	Wall Material Poured concrete	Concrete block/parging	Wood foundation
	Superior" Precast Foundation Wall System w/1" insulation	า Wall System w/1" insulation	יי
Waterproofin	Waterproofing Standard Protection	Premium Protection	
Insulatio	Insulation None 1" Rigid (R-5)	2" Rigid (R-10)	3" Rigid (R-15)* (recommended)
			*Energy Star

FIGURE 3a

Auxiliary Stair	Ground Floor Stair	Basement Stair	SIP Interior Finish	SIP Thickness	House Garage Dormers		NOTE:
None Pine treads / risers (pine), box stairs, handrail, newel post Hardwood treads / risers, box stairs, handrail, newel post		033 Stair Construction Basement Stair ☐ Basement stairs, open riser	SIP Interior Finish 1/2" Gypsum Board	SIP Not Used 4.5" OSB/OSB (R-18)	SIP / Glu Lam Ridge Beam	Composition "I" Joists (Standard spans to 24') * 1" x 3" Ceiling furring not required	_
x stairs, handrail, newel post x stairs, handrail, newel post	usters/ha _LS 2 SI _sters/ha	Pine treads/risers, box stair	☐Tongue & Groove "T&G" (pine or cedar)	8.25" OSB/OSB (R-34) 6.5" OSB/OSB (R-27)	Prefab trusses Dimens Prefab trusses Dimens Dimensional lumber (e.g. 2x8)	2 Dimension lumber (e.g. 2x12) (Standard spans to 19') * Material readily available	031 Floor Construction Priced from least to most expensive per SF of floor system (left to right)
Attic stair; folding; pine; 8'-6" Spiral stairs, oak Spiral stairs, metal	andrail, newel post DES, balusters/handrail, newel post ndrail, newel post ☐Curved stairway (hardwood), open 2 sides	Pine treads/risers, box stairs, WALLS 2 SIDES/handrail only Pine treads/risers, box stairs, balusters/handrail, newel post	ine or cedar)	10.25" OSB/OSB (R-42) 12.25" OSB/OSB (R-45)	Dimensional lumber (e.g. 2x10) Dimensional lumber (e.g. 2x10) e.g. 2x8)	2) 3 Truss Joists (Standard spans to 24') * Utilities easily pass through	

FIGURE 3b

35200 Birmingham	35000 Cullman	ZIP CODE CITY			
AL	AL	STATE			
0.86	0.85	Factor	Adjustment	Regional	
17	17	99%			Winter Design To
21	21	97.5%			ign Temp

FIGURE 4a

2,823	2,823	Heating (Deg Days D
1,881	1,881	Cooling DD	Deg Days
4%	4%	Tax Rate	Sales Tax
		2% 1.50%	Sub GC Escalation

FIGURE 4b

Неа	Envelope Heat Loss	ENERGY MODEL © 2002 Project Pla Enter:
Heat Loss-Basement Walls Heat Loss-Basement Floor (or Ground Fir Slab) Heat Loss-Walkout Wall Heat Loss-Walls	Loss	anning & Management, Inc. State Michigan
1,821 3,198 1,500 448	Area (SF)	TOTAL F TOTAL C TOTAL C Residential Energy Code Michigan Uniform Energy Code Part 10 Rules, less stringent than 1992 MEC
25 B	R-Value	TOTAL FINI TOTAL COP TOTAL COP Sode Gy Code Part 1t than 1992
0.16 0.07 0.07	U Factor	TOTAL FINISHED AREA (TFA): 4 TOTAL CONSTRUCTED AREA: 8 TOTAL CONSTRUCTED AREA: 9 State Mandate Comu Priori an 1992 the st an 1992 rating rating
2 2 8 8 8 8		a ≱≋ ∽ ≒ ∃ a k
6,359 2,814 7,565 2,206	Heat Loss (B'	MASTER (E. 778 SF Berrien City 359 SF 4 Bedroom; 359 SF 4 Bedroom; ments to June 22, 1977, the state adopted ANSI/ASHate adopted ANSI/ASHate adopted ANSI/ASHate 1995 adoption coril 1, 1997, provide cosj information. The Michi

pancy:	Design Occu	Desi	3	0.25 ACH (Air Changes / Hour)	Select > 4 Energy Star Very Tight 0:25 A
Building Envelope Heat Loss	ing Enve	Build			
0.33 69	0.33		ω	0	Heat Loss-Skylights
0.06 69	0.06		ਰੰ	547	Heat Loss-Attic (Uninsulated Roof Rafters)
	0.00		0	0	Heat Loss-Roof SIP (on SIP)
0.03 69	0.03		띪	1,283	Heat Loss-Roof SIP (on Timber)
0.20 69	0.20		2	84	Heat Loss-Doors
0.33 69	0.33	L	ω	_	Heat Loss-Doorwalls
_	0.33	L	ω	128	Heat Loss-Doorwalls
	0.17	<u></u>	6	_	Heat Loss-Windows (low-E) Triple Glaze (R-6)
0.50 69	0.50		2	_	Heat Loss-Windows Standard Glazing (R-2)
	0.33	L	w	586	Heat Loss-Windows (low-E) Default (R-3)
0.07 69	0.07		14	448	Heat Loss-Walls
0.07 69	0.07		14	1,500	Heat Loss-Walkout Wall
0.04 22	0.04	•	25	3,198	Heat Loss-Basement Floor (or Ground Flr Slab)
0.16 22	0.16	. ا	හ	1,821	Heat Loss-Basement Walls
U Factor Delta T Heat Loss (Factor	_	R-Value	Area (SF)	Envelope Heat Loss

FIGURE 5a

MASTER [BASELINE] RCM

Berrien City, MI 4 Bedroom; 5 Bath

EA: 8,358 SF A): 4,778 SF

by April 1, 1997, provide cost-effective standards and establish a program to provide home buyers with energy rating information. The Michigan Uniform Energy Code Part 10 Rules were adopted March 31, 1999. repealed the 1995 adoption of the 1993 MEC. The legislation directed the state construction code commission to, the state adopted ANSI/ASHRAE/IES Standard 90A-1980 statewide. SB 719, signed in early January 1996, Prior to June 22, 1977, the state of Michigan had no building energy efficiency requirements. On July 27, 1965, Comments

n Occupancy:	ηρε Heat Loss	69	69	69	69	69	66	59	69	88	8	83	83	23	22	Delta T
y: 5	ss 41,268 BTUH		2,383		2,439	1,159	•	2,898	ı		13,455	2,206	7,555	2,814	6,359	Heat Loss (BTUH)
													9	7.	613	

69	72	ယ	
Delta T	Indoor Design Temp (deg F)	97.5%-99% Design Dry Bulb Temp (deg F)	The state of the s

72,113	72,113 Total BTUH Demand
1.4	Furnace Sizing Factor
127,000	127,000 Furnace Size at 80%
	Meets Energy Star:
113,000	Furnace Size at 90%
108,000	Furnace Size at 94%
101,000	101,000 Furnace Size at 100% (ELECTRIC)

FIGURE 5b

E = Annual Energy Consumption =	D= D _E V= V= V= D _E D _E	Furnace AFUE =	75% AAUX Efficiency	Mechanical Ventilation w/AAUX	Infiltration / Ventilation
nsumption =	Furnace Size = D = Degree Days = T = Temp diff = V = Fuel value = V = Fuel value = V = Fuel value = CF1 = CF2 =	Furnace AFUE =	141.U9 Min	424	CFM
164,715 1,889 -	80,126 BTUH 6,439 Berrit 69 degrei 1,052 BTUh 91,743 BTUh 3,413 BTUh 1,36 Correi and e 0.71 Empir	%DB	141.U9 Min larget CFM 72.113 RTUH	0.35	ACH
164,715 cu ft natural gas 1,889 gallons of propane - KWH of electricity	80,126 BTUH 6,439 Berrien City, MI 69 degrees 1,052 BTUh per 91,743 BTUh per 3,413 BTUh per 1.36 Correction factor and energy cons 0.71 Empirical correct	2	RIJH	1.08	Constant
cu ft natural gas gallons of propane KWH of electricity (100% Efficiency)	126 BTUH 439 Berrien City, MI 69 degrees 052 BTUh per Callon propane 743 BTUh per KWH electric 1.36 Correction factor that includes the effects of and energy conservation devices. 0.71 Empirical correction factor for heating effect	<select eff.<="" furnace="" td=""><td></td><td>72,764</td><td>Volume</td></select>		72,764	Volume
cy)		ce Eff.	3	18	Delta T
	HIUH By degrees Cu ft natural gas BETUH per Cuft natural gas ANH per Callon propane KWH electric ANH geretion factor that includes the effects of rated full load efficient and energy conservation devices.			8,251	Heat Loss (BTU 22.593

FIGURE 5c

Annual Heating Cost =
Annual Heating Cost =
Annual Heating Cost =

\$955.35 NGAS \$1,794.32 PROPANE \$0.00 ELECTRIC

n23 in Hasement Wall Insulation	023.00 Partial Height Basement Wall Framing	023/Basement Walls	1 DZZ.DO Off Sike Trucking	022 Excavation: Basement	021,10 Basement Slab Insulation 1			102/Salistiticitie 102/Sab on Grade 3	1 1912 Special Foundations	011.40 Excavalion: Foundation Wall Footing 2	_	5 Office of the state of the st	011.20 Sorgad (optings (foundation walls) 4	011.10 Spread foolings (fally columns)	01 Surnitition — 011 Standard Foundations — 011 10 Spead Godings (timber columns)	SYSTEM SUBSYSTEM		© 2002 Project Planning & Management, Inc.	237 System Selections	HOME SPECIFIC QUALITY / COST SELECTIONS
Name	****	Poured-8": bitum/damp; siil plates	Assumes off-site havling NOT required (Assumes on site placement of spoils)	Walkout: Sand & grave) excer, backfill; compaction B* lifts; rough grade	No! Used	4" slab w/4" gravel base; 6 mil vap; expan matt, W1.4/W1.4; steel trowel finis	4" slab w/4" gravel base; 6 mil yap; expan mat1; W1.4/W1.4; steel trowel finis	Not Used	No additional special foundations	4' depth spread fig excay, sand/gravel; backfil; no competh; rough grade	Poured-9", bitura/damp; sill plates	12" thick x 24" wide; forms, reinf, direct chute, PVC 6"gravel drainbed	12" thick x 24" wide; forms, reinf, direct chute	12" thick-30"x30"; forms, rebar, concrete	(2" thick 30" x30"; forms, rebar; concrete		S. S. S.	TOTAL CONSTRUCTED AREA: 8,350 SF • Albertoom (Fibelin	TOTAL FINISHED AREA: 4,770 SF ((Berten City, VI))	MASTERIBASEUHEIRCM
1,82 <u>1</u>	TO SE	1,821	0	1,066	-	3,198	强	0	器	괊	230	벐	ដ	C71	9	quan				EIRCH
AWA	BWA	BWA	SY	St.	똮	똮	똮	띢	स्य	똮	두	두	두	<u></u>	NCOLE	unit				L
70 65,	8	# #3	10.00	\$5.75	50,00	83 <u>.</u> 68	22.69	10.00 10.00	50.03	833	120 17	\$18.47 ☐ 10	\$13.53	\$46.61	\$46.61	unit \$		12.19		
8	22	254 254 254 254 254 254 254 254 254 254	22	86,126 126	*	\$9,617	\$2,328	#	超	: 51 51	\$4,54D	86,506 88,506	舒	83	1	total \$				3
**	***************************************	53.63	10 M	SC 195	18	\$8,617	12,328	**	•	\$138	是	905'9\$	562	523	1	TOTAL	BASELINE			
8	<u>-</u>	8				100	25	É	*	8	병	క	8	B	8	Savings				

Baseline Selections

FIGURE 6a

Selection TOTAL FINISHED ANEA: 4,770 SF Switches 1. 12" thick-30"x30"s lurins, rebar, concrete ggs (Fally collumns) 1. 12" thick-30"x30"s lurins, rebar, concrete ggs (Fally collumns) 1. 12" thick-30"x30"s lurins, rebar, concrete ggs (Fally collumns) 1. 12" thick-30"x30"s lurins, rebar, concrete ggs (Fally collumns) 1. 12" thick-30"x30"s lurins, rebar, concrete 1. 12" thick-30"s lurins, rebar, concrete 1.	8	8	23	\$0.00°	BWA	3,171	_	
Selection TOTAL FINISHED ARGA: 4,778 ST General Dity M Switches TOTAL CONSTRUCTED ARGA: 4,778 ST General Dity M Switches Switches TOTAL CONSTRUCTED ARGA: 4,778 ST General Dity M General Dity Dity General Dity Dity Dity Dity Dity Dity Dity Dity	8	23	23	50.03	BWA		d 1 Not Used	023.00 Partial Height Basement Wall Framing
Selection TOTAL FINISHED AREA: 4,778 ST Beneric Day W. Baselina BASELINE Columns Spritches TOTAL FINISHED AREA: 4,778 ST Beneric Day W. Grant Unit	77	£19649	\$16,792	83 33	EVVA	3,171	1 Poured-9*, bitum/damp; sill plates	023 Basement Walls (1886)
Control Cont		10	12	50.00	CY	_	 Assumes of-site hauling NOT required (Assumes on site placement of spoils) 	022.00 Off Site Trucking
Control Cont	₹/AL	15. 15.	#VALUE!	ARESELECT>	Ş	,066 380,1	دما	+
Control Cont	Ž.		쓤	50.00	뛰	-	1 Not Used	021.10 Basement Stab Insulation
Control Cont	2	/Ide	\$8,617	228	똮	3,198	3 4" slab w/4" gravel base; 6 mil yap; expan malt, W1.4W1.4; steel frower finis	021.00 Basement Slab on Grade
Selection TOTAL FINISHED AREA 4,778 SF Benero Dily VI	3 23	12 12 12 12 12 12 12 12	\$2,328	28	똮	野	1 4" slab w/4" gravel base; 6 mil vap; expan mal 1; W1.4/W1.4; steel trowel fris	221.00 Garage Floor Slab on Grade
Selection TOTAL FINISHED AREA, 4,778 SF Berney Day VI Beaton Status Beaton Beat	=	8	8	80 80	æ	0	3 Not Used	OZI Slab on Grade OZI O Ground Floor Slab on Grade
Selection TOTAL FINISHED AREA: 4,778 SF Beneficially VI BASELINE	*	*	25	8060	铝	 <u>\$</u>	No additional special foundations	012 Special Foundations
Selection TOTAL FINISHED AREA: 4,778 SF Beneric Day Will Selection Selection Selection TOTAL FINISHED AREA: 4,778 SF Beneric Day Will Selection	1	- 	77	(S)	똮	语	2 4' deplà spread fig excav, sand/gravel; backfil; no compoth; rough grade	
Selection	(33)	\$1,540	\$1,614	\$20.17	두	8	1 Peured-8*; bitum/damp; sill plates	
Selection	2	86.506	16,506 16,506	\$18.47	¢	왨	5 12" thick x 24" wide; forms, reinf, direct chute, PVC 6"gravel drainbed	_
Selection	30	5 88	582	\$1353	Ę,	₽	4 12" thick x 24" wide; forms, reinf, direct chate	011.20 Spread foolings (foundation walls)
Selection TOTAL FINISHED AREA: 4,778 SE Bernen, Day M. Switches TOTAL CONSTRUCTED AREA: 8,333 SE 4,89% com 588 ft. Switches TOTAL CONSTRUCTED AREA: 8,333 SE 4,99% com 588 ft. BASELINE quan unit unit total \$ TOTAL total \$ 100 Attention of the control of the co	25	223	13	\$46.61	坚	רט	1 12" thick-30"x30"; forms, rebar, concrete	011.10 Spread footings (fally columns)
Selection TOTAL FINISHED AREA: 4,770 SF. Berney,City, V/ Switches TOTAL CONSTRUCTED AREA: 8,353 SF. 4,88600m, 5/86th. **DASELINE** **DASELINE** **DASELINE** **TOTAL** **TO	*	511	\$419	K46.01	NCOLS	9	12" thick-30":395 fams; rebar, concrete	oundation 011 Standard Foundations 011.10 Spread (onlings) (dinber columns)
Selection TOTAL FINISHED AREA: 4,778 SE Beneficity M. Switches TOTAL CONSTRUCTED AREA: 8,333 SE 4/Bargoom; 5 Bello:	Savi		total \$	unit \$	≣	quan		KTTTI I SUBSYSTEM
Selection TOTAL FINISHED AREA: 4,778 SE Beging Day M. Switches TOTAL CONSTRUCTED AREA: 8,333 SE 4 Beging Dig M.			50.00					
								237 System Selections Se 2002 Project Planning & Management, Inc.
			ゴ	7		E ROM		OHS

deselected in '40' Design Characteristics, requiring selection of Full Basement excavation options. feature (Line 022 Basement Excavation) wherein "ERROR" was triggered when "Walkout Basement" was Alternate Selections illustrating self documenting line item changes to component costs and Self-Correcting

FIGURE 6b

Residential Cost Estimation Construction Summary "Component Options"

systems as selected by the descriptions of the building Control Document that Owner provides outline construction

> Spec Selections Controls Guide

Controls which material Serves a similar purpose options are to be selected drawings would provide in as site and engineering cases where options exist! for site, structura that scope and construction the guide spec sections plumbing systems mechanical, electrical and requirements are called out

all 16 CSI Divisions Detailed Guide Specifications including

CSIMASTERFORMAT Guide Specifications

Divisions 1-16

Division 1 - General Requirements

Division 2 - Site Construction

Division 3 - Concrete

Division 4 - Masonny

Division 5 - Metals

Division 6 - Wood And Plastics

Division 8 - Doors And Windows Division 7 - Thermal And Moisture Protection

Division 9 - Finishes

Refers to

Control

Division 10 - Specialties

Division 12 - Eurnishings Division 11 - Equipment

Section to Documen

Selections

Option

Division 13 - Special Construction

Division 14 - Conveying Systems

Division 15 - Mechanica

